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## ORIGINAL ARTICLES.

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### THE EXTRACTION OF STEEL SPICULES, NEEDLES, PINS, TACKS, ETC., WITH THE HAAB GIANT ELECTRO-MAGNET.\*

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Probably in no community was there more occasion until recently, to use the Haab giant electro-magnet than in our Pittsburgh District, with its gigantic steel mills for unfinished and finished steel products. Yearly such serious eye, as well as other, injuries are lessened in number as the importance of preventive means has been appreciated and adopted by the management of the mills. Trivial corneal injuries now generally receive appropriate care and do not often become serious, due to infection; therefore, hypopyon keratitis and serpiginous corneal ulceration are comparatively uncommonly encountered.

A number of years ago, I undertook this educational task in this community, in the beginning rather against opposition than with co-operation on the part of some of the profession. In all emergency surgery, particularly that of the oculist, to get the best result, the injury should be examined at the *earliest* possible moment. Immediately after the injury is inflicted, the patient is taken to the doctor (or nurse) in the Emergency Hospital at the plant, or the doctor is summoned to the patient. In the interim, the hands, handkerchiefs supposedly clean, etc.,

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\*Read before the Allegheny County Medical Society, April 16, 1912.

and the customary "cold water" applications should not be applied to the injury as they may be harmful. Without delay, in the case of a perforative injury of the eye, refer the patient to the oculist, generally protecting the wounded member with an aseptic dressing. The sooner a splinter of iron or steel is skilfully extracted from an eye, or the orbit, the better, of necessity, is the ultimate result. It is not long since I saw an infectious orbital cellulitis assume really dangerous proportions due to a large iron splinter which had penetrated the lower eyelid, lodged deeply in the orbit and remained there for a few days before a simple, easy Haab magnet extraction was made.

The question as to the method of extraction of a steel or iron splinter from the vitreous humour, or, in fact, from the posterior half of the eye, whether by means of a small magnet and a scleral opening, or by the corneal route with the fixed giant magnet such as the Haab model, without a scleral incision, is still under discussion in some quarters. I plead with you in favor of the latter method. A small splinter that has entered through the cornea, lodging in the posterior half of the eye, should be removed, (and I hope you will soon view this as I do), around or through the lens, in front of the iris and through the wound of entrance, if recent and sufficiently large, or through a suitable corneal incision. Exposing the vitreous unnecessarily and inserting a magnet tip more or less deeply into the vitreous, no one will do, I venture to say, when they have become proficient in the use of the giant electro-magnet.

The magnet influences iron and steel splinters in an eye in proportion to the lifting power of the magnet and the size, composition, location, lapse of time since the injury, etc. The power of the magnet depends upon the voltage of the current flowing through the winding of the magnet. If the leads coming to the magnet are overloaded, the lifting power will be proportionately lessened. I am of the belief that of all immovable giant magnets, the Haab model is the strongest. In fact, a magnet cannot be too strong for this work, but the technique of its individual application must be well understood by the operator as irreparable damage can be very quickly wrought by its faulty use. As in all forms of surgery, experience is the best though the costliest teacher. Misapplication of the rules, as laid down by Haab, in the use of his instrument, tend only to delay the wider application of this great boon in the instrumentarium of the oculist. In this connection, I refer to Haab's recent expression

on this subject in the *Archiv. fuer Augenheilkunde*, Volume LXIX. No. 2. There, he, in his invariable clear style, gives his reasons for the poor results achieved by Bull with a large magnet and published in the *Transactions of the American Ophthalmological Society*, 1910. Having been assistant to Haab about two and one-half years (1896-1899), it is my impression that they, there, can better handle such indigenous injured patients, than we, here, can the unfortunate skeptical foreigners, who form such a large percentage of this class of eye injuries. May it not be true that the physical resistance of their patients is superior to ours? Has not the first aid received there some bearing on the matter? I believe my statistics are not as favorable as Haab's. In part, this is truly attributable to his particular deftness in the correct use of his magnet.

If from the nature of the accident and the wound of the eye, it is suspected that a splinter is within the eyeball, and it cannot be seen by oblique illumination, ophthalmoscopic examination or transillumination, before bringing the eye to the magnet, the eye and the surroundings must be prepared for the actual removal of the splinter. A few drops of a 2 to 5 per cent. sterile solution of cocaine muriate, should be instilled into the conjunctival sac, at intervals of a minute, for three minutes. If you desire, you may also instill a few drops of a 1:1000 sterile adrenalin chloride solution. The skin about the eye should be made as sterile as possible. The conjunctival sac, especially the lower fornix, must be gently but copiously irrigated with a suitable, bland, sterile solution; e.g., saturated boric acid, normal salt solution or even a 1:10,000 bichloride of mercury solution. The condition of the conjunctiva and the tear passage should be known. Dacryo-cystitis or blenorrhœa will surely ruin such an eye if it is not properly attended at this time and may do so in spite of every care. Catarrh of the conjunctiva, with excessive secretion, also demands attention. A prolapse of the iris requires abscision. For all details dealing with possibilities demanding recognition before actually bringing the eye to the magnet point, I refer those especially interested to the various most excellent papers emanating from the University Eye Clinic at Zuerich, Switzerland, directly under the charge of Professor Haab.

The Haab magnet is a stationary instrument and the operator

\*Weill, N. J., Lessened Local Resistance to Infection the Result of Constitutional Condition.—"The Medical World," March, 1910.

brings the head of the patient toward the magnet point and, as commanded by the operator, the eye is subjectively directed at the desired angle. Therefore, before allowing the current to flow through the winding of the magnet, the foregoing may be practised, in any instance, to familiarize the patient with that which may be demanded of him later during the operation. The pupil must usually be dilated to the fullest possible extent, if the splinter to be extracted lies posterior to the iris. Unfortunately, then, all preparation, in any given instance, requires approximately an hour, and this is very valuable time, but the delay at present would seem unavoidable. The iris, if possible, must not be seriously interfered with by the splinter in its transit from the posterior to the anterior chamber of the eye. The spicule must be free in front of the iris before it is to be extracted with the magnet through the corneal wound or incision. Should this not be just so, the iris may be attracted with the splinter, and thus, stretched unduly and torn, causing hæmorrhage, etc. An idea is formed from the length of the wound of entrance, of the possible size of the splinter, at least in one diameter. Other visible damage caused at the time of entrance of the splinter, aids in its location, as perforation of the eye-lid, hole in the iris, wound of the anterior or posterior lens capsule, vitreous opacities, etc. Sometimes the splinter can actually be seen within the eyeball. If with the ophthalmoscope, air bubbles are discovered in the vitreous humour, generally a splinter is lodged within the eyeball or has penetrated the opposite wall partly or entirely.

The magnet tip and the immediately adjoining parts of the magnet, which may be brought into the field of operation, must be made as sterile as possible. A sterile rubber covering closely fitting that portion of the magnet adjoining the tip, is to be recommended. The tip, itself, is removable and can be boiled. Care must be taken that the field of operation is well illuminated and the operator should not take his eyes from the field of endeavor while the patient is seated before the magnet, whether the current be on or off, in order to be certain that nothing comes in contact with the sterile tip of the instrument. A cap of sterile material should be placed over the patient's hair and a face mask with proper apertures for the eyes is advisable, in order that anything the operator may touch, may not infect his hands.

I stand on the right side and in front of the patient who is seated facing the point of the magnet, his arms resting upon the board provided therefor, on the stand of the Haab magnet.

The head, i.e., the injured eye of the patient is guided by the operator and brought to the point of the magnet, excited by its weakest current, from a distance of about two inches, until the very point is almost in contact with the cornea. If negative, this is repeated until the strongest current is thus employed. If still negative, while the magnet is thus charged, repeated making and breaking of the contact with the foot treadle should be made and a splinter may be attracted by jerking that would not come otherwise. The magnet has two (2) points. If the result with the one is negative, the other must be tried and it may be positive. With the foot treadle, contact should be made forward and backward if necessary, as this is the pole changer. Haab has given such detailed descriptions in his early articles on this subject, which can probably not be improved upon, that those desiring detail in his words are referred to that source.

However, should we desire to learn in the case of a corneal perforation, whether a splinter of iron or steel is within the eyeball, approach the cornea to the magnet point as just described, bringing it generally in the median line at the junction of the middle and upper third, because most splinters come from below upwards, being lodged in the lower half of the ball; and because, generally, the patient, at the moment the splinter is attracted, raises his head. We need the well lighted field, since, should a splinter, as they frequently do, strike the iris, the current must immediately be broken or the head of the patient must be pushed away from the magnet, in order that the spicule may not become entangled in the meshes of the iris as is very likely in the case of a sharp splinter. More splinters which have perforated the coats of the eye and have lodged within the eyeball, rest in the posterior half of the eye than in the anterior half. The attraction of the piece, the patient will manifest, generally, by suddenly slightly raising or withdrawing his head from the excited magnet point, and thus, the operator will be informed of its presence before, perhaps, it is actually in the anterior half of the ball. Generally, this is attributed to the pain occasioned, but the patient may see the splinter travelling forward through the vitreous humour. Assuming it to have touched the lower iris, to bring it free into the anterior chamber, the patient is directed to look well down, while the point excited with the weakest current is applied to the upper cornea opposite the splinter and the current is increased in strength, as may be necessary. Here, too, with a weak current, patience and perseverance is necessary on



the part of both the operator and the patient. The splinter, if small, and the anterior chamber such as to accommodate it, being attracted to this location, drops with the breaking of the contact in front of the lower iris. Then extract it through the wound of entrance, if open or quite recent, and large enough, or enlarge if necessary, or if closed, make an advantageously located incision with a keratome or Von Graefe knife, at least one-half again as long as the axis of the splinter in the position in which you intend to extract it. Now the magnet point is put into the lips of this wound and then excited with the desired current. The toilet of the wound, dressings, etc., is laid down in your treatises on the eye.

When the vitreous has been injured, absolute rest in bed is to be encouraged until the eye is entirely free from inflammation. In each magnet extraction, individual contingencies must be met as encountered and the principles as outlined are only general.

From my experience, I believe that in the case of a recent injury, where a foreign body of iron or steel of magnetic composition is located within the eyeball, it can be attracted with the Haab giant electro-magnet and thus can be removed from the eye.\*

The question of having an eye X-rayed before attempting an extraction, I say, with Haab, is unnecessary. This procedure costs valuable time, unnecessary exposure and handling, adding to the danger of infection. Regardless of the location of the splinter within the eyeball, we desire to remove it through the cornea. Why then, should it be precisely localized with the X-ray?

The only exception I will accept, at present, to the general principles of the application of the Haab giant electro-magnet in eye injuries, as here briefly described, regardless of the location of the wound of entrance, whether it be through the cornea, or through the sclerotic coat, is in the case of a presumably very large splinter that has entered the ball through the sclerotic coat, posterior to the ciliary region and where the wound of entrance is still gaping. Here, a blind eye is to be expected. If the eyeball can be preserved, I, therefore, think it permissible to extract the splinter through the wound of entrance.

Here, I wish to lay particular stress on the importance of continuing the application of the magnetic current for a considerable

\*Weill, N. J., Two-fold use of Haab's Electro-Magnet in Eye Surgery. —"Penna. Med. Journal," August, 1902. Vide Under Reference 5.

time, if need be, until the winding becomes really warm, before declaring the magnet negative. There are various kinds of steel and these vary in magnetic composition.

If a small clean steel or iron splinter is lodged in the orbit and its exact location is not known, it may not be possible to attract it with the magnet. Why disturb it? If such a splinter is the source and at the seat of an inflammation, its extraction with the magnet can be accomplished by bringing the excited magnet tip as close as possible to it.

When a splinter of iron or steel is lodged in the deeper layers of the cornea or sclera, it is grand to be able to extract the splinter by attraction, not causing the trauma to be an iota deeper. Because the splinters are very small and on account of the resistance offered by the surrounding tissue, the maximum strength of the excited magnet may be demanded for a very considerable period accomplishing the extraction.

In other parts of the body, such splinters occasionally penetrate and can generally be successfully extracted with this instrument, especially if seen early before they have become more or less fixed. Steel needles, steel pins, steel tacks, etc., can thus be cared for when lodged in accessible parts of the body. In this latter class of cases, I have failed in the past at times, only because I did not well understand the use of the Haab magnet. I discontinued the application of the maximally excited point of the magnet too soon, forgot that persistence was necessary as the cases were generally of some days' standing before they were brought for the removal of the foreign body. If general hospitals were equipped with a Haab electro-magnet (price about \$200.00), the extraction of these foreign bodies would be greatly facilitated.

In conclusion, I beg to call your especial attention to the very pronounced advantage of early aseptic and correct subsequent treatment of perforative eye injuries, where iron and steel has possibly played a part in the accident. The ultimate result depends considerably upon the efforts of the physician who renders first aid, in these instances; therefore, I appeal to him to measure well his limitations in this field of endeavor.

Abundant opportunity for the use of the Haab giant electro-magnet has been afforded me in the last twelve years, therefore, unhesitatingly the ophthalmologist is urged to become an adept in its application.

A CASE OF OPTIC PAPILLEDEMA AND PARESIS OF  
THE THIRD NERVE CAUSED BY INFLAMMATION  
OF THE ETHMOIDAL SINUSES.

By J. B. McCUBBIN, M.D.,  
AND  
C. ARMIN GUNDELACH, M.D.,  
ST. LOUIS, MO.

On October 5th, 1910, F. B., 20 years old, a baby nurse at the St. Louis Children's Hospital, came to the office of Dr. Charles with severe frontal headaches, which were worse mornings and which had lasted almost constantly for seven years. His measurements were: Ophthalmometer=As 0.75+M. vertl. R. and L.; O.D. Hm. 1. V=19/12; O.S. ditto; pupils normal; fundi normal R. and L. with slight blurring of nasal margin of left disc, apparently not pathological. Later, O.D. V=19/12; O.S. ditto. Refuses astigmatic correction.

There is a slight fulness and extreme sensitiveness in the ethmoidal region. On account of ciliary spasm, and the fact that the patient had used glasses without relief, further examination was postponed and she was referred to Dr. Greenfield Sluder whose notes conclude this report. He examined her for some time in the hope of finding whence pus might come; but in all the weeks required no pus appeared although her headaches continued. She finally obtained permission from the hospital head to take a vacation at home, and disappeared from our observation.

On April 15th, 1911, she was referred to Dr. J. B. McCubbin of the eye clinic whose notes follow:

"Since 13 years of age the patient has had almost constant headache, running from the nose to the left temple. She was given glasses by a physician in her home town in September, 1909, but experienced no relief and the glasses were discarded. In March, 1910, a mastoid operation on the left side was made. In 1909, her upper and lower incisors had been extracted for the relief of headache and her tonsils had also been removed in 1910.

"She is now suffering from left internal ophthalmoplegia. She had been told two days before that her left pupil was large. The pupil and accommodation of the right eye are normal. The disc margins are blurred right and left."



She was referred to Dr. C. Armin Gundelach of the rhinological clinic. Dr. Gundelach's notes of April 16th, 1911: "Miss F. B., age 21, of good physical development, with weight of 125 pounds, reports having had no serious illness, but says she has never been well. Her headaches began about eight years ago and at times were accompanied by nausea and vomiting. For this reason the patient called them sick headaches. The headaches have continued up to the present time; there has been no concomitant nausea or vomiting, however, since November, 1910. The headaches were more severe in the mornings. At times patient complained of dizziness while in the erect posture. Menses set in at age of 18, always irregular, flow varies greatly. At times scanty, then again metrorrhagic in character. Average duration 5 to 7 days. Headaches usually more severe at time of menses. The headaches with nausea and vomiting, however, would occur independently of the time of menstruation. The patient's habits are good. The bowels regular. The headaches have been of about the same character and intensity up to three weeks ago, when the patient had a slight cold. Six weeks ago, however, the patient says she had a severe cold and croup, i.e., could not talk above a whisper for over a week's time. In the last three weeks the headaches have been very severe, causing insomnia. Appetite fair during this time. Two days ago the lower lid of the left eye was swollen. Both upper and lower lid markedly reddened. Vision with the left eye became indistinct.

"Examination.—Mouth in good condition—upper and lower incisors absent. Very narrow and highly arched hard palate. Tonsils have been removed with part of anterior pillars. Nasopharynx dry, partly covered with mucoid secretion. Posterior end of middle turbinate left side hypertrophied and covered with a thick purulent secretion. Anterior rhinoscopic picture shows a hypertrophied middle turbinate with congested anterior tip; the turbinate rests against the septum in a part of its course. Small pearls of rather thin muco-pus are seen in the middle meatus, as also some secretion in the inferior meatus on the left side. Externally the lids of the left eye are of a brownish red color; lower lid somewhat puffy. Left pupil greatly dilated. On slight pressure there is great pain in the orbital roof. By transillumination, with light in mouth, the light reflex is present in both eyes; right and left antrum clear. Transillumination of the frontal sinuses, though not very satisfactory, shows them to be clear. Both memb. tym. intact.

"Examination of the patient's urine for albumen, casts and sugar negative."

It was suggested by some one that there was a decided psychic element in her symptoms, and the patient was accordingly referred to Dr. M. A. Bliss for a neurological examination. He reported absolutely negative findings except as above.

The notes of Dr. McCubbin and of Dr. Gundelach follow, according to dates, because the case was followed closely by both physicians.

April 18th—Left middle turbinate removed; a few of the anterior and posterior ethmoidal cells opened. Cells filled with mucous membrane that had undergone polypoid degeneration.

April 20th—Patient complains of dizziness in sitting up. Bowels acting normally. Pupil smaller and reacts fairly well to light. No change in the condition of the discs. The patient is confined to bed since operation. She has severe general as well as left frontal headaches. Refuses all nourishment. Has slept but "one hour" since the operation. Pulse 96, respiration 28, temperature ranges from 101 to 102.8 for last two days.

April 21st—Pupil somewhat smaller. General condition unchanged.

April 22nd—No fever. Feeling fairly well. Subjective vision improved.

April 23rd—Left pupil much smaller and reacts well to light. Read large newspaper print with left eye.

April 24th—Both pupils equally contracted and react to light and accommodation.

April 25th—Pus from posterior ethmoidal and sphenoidal sinuses is draining freely. Slight frontal headache over left eye. Patient feeling fairly well though somewhat weak.

April 26th—Pupils equal in size and react well to light. Disc margins still blurred. Headache much relieved. Reads small newspaper print with right, but only large with left. O.D. V=20/24; O.S. V=20/48.

Goes home to the country.

May 1st—The patient returned last evening. Eye looks well. Patient feeling better.

May 3rd—Patient reports having had a severe headache last night which kept her awake from two o'clock on. Before retiring she was told that the pupil was very slightly dilated. She says that this morning it was widely dilated. Condition in nose practically unchanged. Ocular examination shows O.D. V=

20/30+ (Hm. 0.25); O.S. V=20/48 (Hm. 0.5). Right disc less blurred. Left disc unchanged. Fields for form and color normal. Ocular movements perfect in all directions except convergence of O.S. On covering O.D. the movement inward of O.S. in order to fix is quite distinct. Maddox rod gives slight homonymous doubling at 15 ft. Pupil O.S. moderately dilated and reacts fairly well to light. Used eserine gr. ii.- $\frac{5}{16}$ . (Pilocarpine gr. iv.- $\frac{5}{16}$  had been used several times daily without effect.) Two hours later the pupil was widely dilated and failed to react even to focal light.

May 4th—Little secretion in nose. Pupil smaller and reacts to light. Eserin 1 in 240 in oil instilled. Two hours later pupil more widely dilated than ever. The eye has "jerked" a great deal since using eserine and the globe is injected.

May 5th—Pupil still widely dilated. The patient douches the nose with an alkaline solution. O.D. V=20/30+; O.S. V=20/240 to 20/150. Decided blurring of left disc. Used nothing in eye. Three hours later pupil smaller and reacts to ordinary daylight. Form fields normal. Color fields normal. O.D., fails to differentiate with O.S.

May 6th—Patient reports that she feels very weak and has eaten little or nothing. O.D. V=20/30+; O.S. V=20/120. Pupil smaller and reacts. During the night she awoke finding herself sitting up in bed. The right side of her nose (unoperated) was bleeding. Lost "a pint of blood", but did not catch it in a receptacle. The epistaxis lasted about a half-hour. The headache to-day is, as formerly, in the frontal region. Illumination shows a clear frontal sinus on both sides. Pus in nasopharynx on left side. Dried secretion in nose. Right side negative. Temperature 99.6.

May 8th—Nasal condition unchanged. O.D. V=20/30+; O.S. V=20/240 to 20/150. The right pupil is normal. The left, fully dilated and unresponsive.

May 10th—Anterior and posterior ethmoidal cells, as also frontal and sphenoidal sinuses, widely opened. The posterior wall of the sphenoid measures 8.7 c.m. from the anterior nares (bony edge of floor), and the distance into the frontal was 6 c.m. in a straight line, not allowing for the curve of the probe. Temperature 99.6. Polypoid degeneration of the mucous membrane of opened cells; glistening with thin secretion.

May 11th—Headache is much better. There is a slight pain over the bridge of the nose. Temperature 100.0. Pupil somewhat smaller.

May 12th—Headache better. Temperature 100. The patient is drowsy from one-quarter grain of morphine for insomnia. She feels tired and aches all over.

May 13th—Temperature 100. Pupil distinctly smaller. Blood examination negative.

May 15th—The patient feels very much better and wishes to get up, but refuses all nourishment. Temperature 100.

May 16th—No headache to-day; first time in years. No appetite. The patient is referred to Dr. Geo. M. Tuttle, who reports finding no demonstrable cause for the abnormal temperature. The patient is given an antipyretic mixture.

May 25th—Patient has been up and about since the 16th. Temperature remains above normal. Feels "fine."

June 4th—Patient reports having had nose-bleed and feels weak from loss of blood. Repeated examination of urine showed it to be normal.

June 17th—Practically no headaches. Afternoon temperature of 101 still persists.

July 5th—Two weeks ago had headache over left eye as also a pain under the left eye. The pain over the eye has not been as severe as before the operation, but the one under the eye is much more severe than it ever has been. The frontal headache lasts for an hour or two, whereas the lower pain is almost constant. At times there is a shooting pain which passes backward into the ear of the left side. The frontal pain is said to pass from temple to temple at times. The antral pain is often felt in the upper gums. Over the right antrum, i.e., below the eye and to the right of the nose, there is a large swelling, reddened, throbbing, painful. An abscess of the cheek, result of picking a pimple. Abscess opened, dressed, etc.

July 8th—Patient reports having had on July 6th a severe headache of half an hour duration; then a sudden evacuation of several teaspoonfuls of pus from left nostril, with partial relief of headache. O.D. with +0.25 cyl. axis vertl. V=20/15+. O.S. with +0.25 cyl. axis 115 V=20/15+.

August 10th—Patient came to-day to have the nose examined prior to going home. She was seen last on July 31st, and felt fairly well that morning. She had some headache. The same evening the patient began to vomit and had a severe headache over the entire head. Next morning she got up as usual. Vomited eight or nine times. In the evening Dr. P. G. Hurford was called to see the patient for a severe pain in the right iliac region,

and she was sent to the W. U. Hospital with appendicitis. She, however, recovered without an operation and left the hospital on August 9th. Complains now of being weak and having headache on both sides but especially severe in the occipital region. Temperature at present 101.3 Examination shows the nose to be in good condition.

September 22nd—Patient returned to-day and reports as follows: When she went home (August 10th) she promptly began to gain in weight and soon felt fine. Improvement in every way continued up to September 16th, when she noticed a swelling of the left cheek. On the next day a pain set in involving almost the entire head. The pain soon localized itself over the left eye extending over and behind the left ear. At times since then the patient thinks that her sight and hearing have not been quite up to the usual. At the present time the pain is growing worse though the swelling is improving. Examination shows the left cheek to be distinctly swollen and tender to the touch. With the finger in the mouth a sub-periosteal swelling in the fossa canina can be made out. Teeth in good condition. Ordered local applications.

September 27th—Improved; swelling of cheek gone; still has pain when eating. Transillumination shows both antra clear. Left antrum washed, negative. Nose in good condition. Second course of antiluetic (mixed) treatment begun.

1912, February 23rd—Patient reports slight discomfort reading. R  $+0.37$  cyl. ax. vertl. ( $V=19/15$ );  $+0.37$  cyl. ax. vertl.  $+0.25$  sph. ( $V=19/15$ ). Also reported that she had been comparatively free from headaches all winter. Examination of nose reveals some secretion in left superior meatus.

Dr. Sluder's notes follow:

Oct. 16th, 1911.

"My Dear Dr. Charles:—October 1st, 1910, F. B. was sent to me from the Children's Hospital, complaining of frontal temporal headache, on both sides. She gave the history of these headaches having been of long standing, seven years. The nose was negative after careful examination, in every way. I felt, however, that her nose would require much more investigation before it could be excluded from the factors possibly causing her headache. For this purpose she came to me October 8th, 12th and 19th. On each of these days nothing was found to in any wise explain the symptoms. She denied all history of nasal

discharge and I felt that beyond all question her nose was not making her headache. Some time later her tonsils were removed. I was told that this procedure had cured her headache. Some time after that Dr. Gundelach brought her to see me in consultation, when examination revealed a very clearly marked sphenoidal and postethmoidal suppuration of the left side. Her vision had gone off very greatly in that eye at that time in the attack of a few days standing. I counselled immediate operation, suggesting a radical Hajek postethmoidal sphenoidal opening, which was performed by Dr. Gundelach. I believe all further details in the history of this case to be already in your possession.

"Looking back over the history and course of the case, I am at a loss to connect the original condition, that is, her frontal temporal bilateral headache of seven years' standing, with the subsequent postethmoidal sphenoidal suppuration with unquestioned involvement of the optic nerve. When the latter condition arose it was so exceedingly definite in the nose as well as in the eye, that it seems to me scarcely possible that this condition could have made the old long-standing headache, and after most careful investigation of the nose in every way not have revealed something of itself. It is also very difficult for me to understand how a bilateral frontal temporal headache could be caused by a postethmoidal sphenoidal suppuration of the left side."

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SERPIGINOUS ULCER—COMPLETE INVOLVEMENT  
OF CORNEA—RECOVERY UNDER MIXED  
VACCINE AND UROTROPIN.

By J. W. CHARLES, M.D.,  
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On October 22, 1911, A. D., 57 years old, a coal miner, came to me with the following history:

Ten years ago he lost the right eye; three days ago a piece of coal struck the left eye. He was seen immediately by the company physician, Dr. J. M. Kellar, who says that he irrigated the conjunctival sac and applied tincture of iodine to the wound, bandaging the eye and cautioning the patient to return that evening for further treatment and observation. The patient did not return until yesterday noon (Saturday), when the eye was in about the same condition as this morning.



The right eye is a shrunken globe. The left sees fingers at three feet and exhibits a central ulcer of the cornea about 4 mm. in width and very yellow. The anterior chamber is about one-fourth full of very yellow pus. Before I thought to obtain a culture or smear, I had wiped the ulcer clean with cotton applicators of bichloride and then touched with nitrate of silver gr. 40 to  $\frac{5}{16}$  going to the bottom of the ulcer thoroughly. I freely irrigated the conjunctival sac with silver nitrate, gr. 2 to  $\frac{5}{16}$ , used atropia and cocaine in oil several times and bandaged, prescribing argyrol 20 per cent. The case was referred to Dr. Walter Fischel for serum treatment.

October 24. Patient is very nervous, denies having been an excessive or regular drinker. Prescribed sodium bromide gr. xv. t.i.d. and treatment of eye every half-hour as above, because the cornea is rapidly becoming yellow. Temperature=98.6; pulse 80; respiration=20.

The eye became progressively worse until October 25th, when patient was given combined vaccine 500 million by Dr. Fischel.

On October 26th (four days from the first visit) the whole cornea had become involved. We then decided to add urotropin, gr. xv., every three hours. The conjunctiva was cedematous and the upper ciliary region was very sensitive (cyclitis).

His history in the hospital was as follows: Urine normal, the patient very nervous.  $\mathcal{R}$  Magnes. citrat. at once. Dr. Fischel gave 250 million combined vaccine p.p. Bowels moved freely. Light diet was ordered, with calomel gr.  $\frac{1}{4}$  t.i.d.; also veronal gr. vii. at bedtime. Locally irrigate eye with 20 per cent. boric acid solution, argyrol 30 per cent., atropia and cocain in oil, and zinc oxide ointment every three hours.

October 27th.—Cornea seems entirely involved. He is suffering so much that morphine gr.  $\frac{1}{4}$  was prescribed when in the judgment of the nurse the patient required it. The patient continues very nervous, restless in his sleep and talks a great deal. Temperature 99.2 Pulse 80. Respiration 20. Defecation free. Continue calomel gr.  $\frac{1}{4}$  and sodi. brom. gr. xv. and urotropin gr. xv. t.i.d. 2:00 p.m. patient very restless but eye perfectly comfortable after treatment by me.

October 28th.—After patient had taken two drachms of urotropin he slept well all night and remained free from pain until 1:45 a.m., October 29th, when he had a severe pain which lasted the rest of the morning. The eye was taking on a better color and I noticed that the pupil was becoming visible.

October 30th Dr. Fischel gave patient 600 millions combined vaccine.

The patient's severe pain induced me to call Dr. Post into consultation, who found that the tension of the eye was considerably elevated. This elevation of tension must have arisen within the last twenty-four hours because the patient had been so comfortable for the previous forty-eight hours and his vision had been acute perception of light. Atropine discontinued. Oil of eserine was prescribed 1/240, and holocaine 10 per cent.

October 31st.—Patient slept the greater part of the night. Cornea rapidly clearing so that pupil can now be distinctly outlined. It was small, and fearing posterior synechiæ and believing that the increased tension had been due to the cyclitis, I prescribed cocain 1/30 and oil of eserine every three hours.

On November 1st, I ordered eserine discontinued, but on the following day I found that he had received it regularly and was again having severe pain with a small pupil and tension normal. The cornea was rapidly recovering, and I used atropia and cocain oil. Patient's mind is wandering and I cannot rely on his statement concerning the pain.

On November 3rd the patient had slept well the night after atropia, but the pupil was now dilated and the patient was again suffering pain. The nurse found him with his head under the bed and he seemed not to know what he was doing. About this time the patient complained of pain on micturition. Urotropin discontinued when cornea again looked "nasty," and the anterior chamber began to fill with pus; this disappeared upon resumption of urotropin.

November 4th. The patient was given by Dr. Fischel nitroglycerine gr. 1/100 every four hours to control blood-pressure and aspirin gr. v. t.i.d., also 700 millions of the combined vaccine. I treated the patient at once with eserine and holocaine. He was almost violent with pain and was given morphine gr. 1/4 with nitroglycerine at two o'clock. At three he was much more comfortable, and at 3:30 he was again moaning with pain. I saw him again at 5:30, when he was again comfortable. He did not complain of pain again until four days afterward.

On November 8th, 8 a.m., he was up and dressed. His mind was wandering and he said that he had no pain in the eye. Mind much clearer in the afternoon.

On November 10th, 200,000,000 staphylococcus vaccine injected by Dr. Fischel. The patient was sleeping well most of the

night and the eye does not pain. Treatment with eserine, holocaine, etc., continued.

November 11th. The patient is up and dressed most of the time.

November 12th. Complained of pain in the head most of the day. He is restless but sleeps well. The cornea is practically well as far as pus infection goes and the ulcer is almost healed. The urotropin was discontinued.

November 15th. Dr. Fischel gave patient 200,000,000 combined vaccine.

November 16th. Patient refused to have eyes treated. Is up and dressed. When I attempted to discontinue eserine, the patient complained of pain and it was prescribed t.i.d. The pupil was too small for my peace of mind, but I felt that later an operation could be done which would be preferable to risking the results of continued increase of tension.

On November 22nd, the patient came to my office, where I used atropin and kept him under observation for several hours. During this time he did not suffer any pain; but immediately upon his return to the hospital he complained of severe pain, which disappeared immediately under morphine gr.  $\frac{1}{4}$ . Eserine was used by the nurse at 4 p.m. and at 8 p.m.; also, November 23rd three times. I was pretty well convinced that the patient's complaints were founded somewhat upon the use of morphine and used atropin at four o'clock without causing discomfort, and thereupon prescribed it to be instilled three times a day. In spite of its use the pupil remained bound down almost completely. I could see no yielding under the atropia.

The patient left the hospital November 30th with normal tension, light perception good, projection only fair (patient very difficult to examine), promising to return later.

The one point of interest is that some time during the treatment, the patient complained of pain on urination and the urotropin was stopped, when the cornea began again to become yellow and the aqueous to fill up with pus. Upon resumption of the urotropin, the cornea resumed its clearing process. Silver-nitrate applications were discontinued on the second or third day and the argyrol could hardly have been of much value except as a wash to prevent entrance of further infection and therefore, since the whole cornea was involved, the inference is that the process was checked by resistance established from within.

## MEDICAL SOCIETIES.

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### OPHTHALMIC SECTION, PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

Meeting February 8, 1912.

The President, Dr. Wendell Reber, in the Chair.

*Trichloroacetic Acid in the Treatment of Corneal Ulcers.*—Dr. W. W. Watson.

Trichloroacetic acid, a monobasic, crystalline, organic acid, discovered by Dumas in 1838, and made official in 1890, is a powerful caustic, and in aqueous solution is used in the treatment of corneal ulcers. Applied with care, the solution of five to twenty-five per cent. strength is very beneficial in inhibiting germ proliferation without destroying cell life. The haziness of the cornea which follows the application clears up in one to twenty-four hours with no unfavorable symptoms. If hypopyon is marked, apply a strong solution daily, but for most purposes the weaker strength should be selected with repeated applications.

The acid is to be preferred to ointments and collyriums, as it is easier for the patient, and more certain; it has the advantage over the operations in that it offers no opportunity for further infection through fresh wounds, and excels the thermocautery in that it does not destroy adjoining healthy tissues.

The acid checks the liability to corneal perforation, and compared with other caustics lessens corneal opacity.

*A Case of Hypopyon Ulcer of the Cornea Treated by Corneal Incision.*—Dr. Charles E. Shannon.

A laborer, 50 years old, had some lime splashed into his right eye, severely burning the cornea. Despite prompt and energetic treatment, an extensive purulent ulcer with marked hypopyon developed in the course of 5 days. Operative treatment was deemed expedient in view of the rapidly increasing hypopyon; and under cocaine anæsthesia an incision was made in healthy

corneal tissue with a narrow Graefe knife immediately below the site of the ulcer. This was followed by the complete evacuation of the inflammatory exudate. Within 2 days the wound had healed and the anterior chamber reformed; and within ten days the ulcer was completely covered over with epithelium. The final result was perfect, the cornea showing only a fine diffuse scar.

#### DISCUSSION.

Dr. D. Forest Harbridge had had little experience with trichloroacetic acid, having used the pure drug only, in a limited number of seriously infected cases. Regarding Saemisch's incision, Dr. Harbridge said it had been several years since he last performed this operation. He felt it to be a very destructive procedure, and that if the incision be made in healthy tissue as far away from the pupillary area as possible the results would be just as effective. He prefers employing a keratome, believing that the wound made by this instrument heals better and quicker. The incision he makes just inside the limbus; if necessary, it may be repeated at intervals of a few days. He believed the draining of the anterior chamber in itself beneficial to the healing of an ulcer as well as the removal of the hypopyon. Often malnutrition is a contributing factor in the development of hypopyon ulcers, or at least people who are underfed are more susceptible to slight damages to the cornea.

Dr. Wendell Reber.—Ulcers are generally classed as simple, infected, complicated and perforated. Simple ulcers that follow after foreign bodies in the cornea almost always take care of themselves. In infected ulcer with infiltrated edges, atropia is invariably indicated, with hot stupes. It is wise to indulge in internal treatment at the same time. Calomel should be given because it assists the blood in manufacturing antibodies to resist the infection. The complicated ulcer is the one which is being discussed this afternoon. Tincture of iodine, carbolic acid or 1 per cent. formalin may be used. I may say that my use of trichloroacetic acid has been in 25 per cent solution; I once used it pure. It is difficult to me to persuade myself that it does as well as some other remedies. It is highly diffusive, it is very hygroscopic (moisture hungry) and it attracts some of the moisture away from the normal cells, so that it is open at least partially to objection. Carbolic acid is even more strongly to be avoided in my estimation than trichloroacetic acid, and one must

have a very delicate touch to use carbolic acid safely, as the acid is apt to be deposited where it is not intended to be put. The organic silver solutions have almost gone out of vogue, but if you will read the old authors you will see how much they were used. Tincture of iodine, as far as my information goes, does not damage normal conditions, nor is the pain very bad from it, particularly if an application of ice follows immediately after the application of the iodine. I took the trouble once after using trichloracetic acid to stain with fluorescein and much of the corneal tissue whitened by the acid took the stain.

One per cent. formalin appeals to me for three reasons:—first, it will not damage normal corneal tissue; 2nd, it does not extend to normal corneal tissues; 3rd, it toughens the very membrane you wish to keep intact.

A young woman in the Samaritan Hospital with Neisser's conjunctivitis, had a large hypopyon. She received daily local treatment of iodine, and internally had serum treatment, with biniodid of mercury, quinine, iron and strychnia. We saved her cornea without an operation, but the floor of the ulcer was very weak and began to bulge. One per cent. of formalin was applied daily for a week and the contour of the cornea became normal. I cannot help but think that the formalin was of value in toughening up the thinned corneal wall. I agree with Dr. Shannon in the belief that an incision in the normal corneal tissue is superior to the Saemisch incision through the ulcer itself.

Dr. Charles R. Heed.—I have recently treated two badly infected ulcers with considerable hypopyon. On one case I did a corneal incision below. There was considerable pus but the wound healed almost immediately. In the other case Dr. Sweet had tried chemical treatment (iodine), but the hypopyon increased. The eyeball would have been lost if he had not done a corneal incision. I saw the patient less than a week ago and his eye was saved. He has a very good eye, intraocular tension is normal, and in time, if he should lose the other eye, we could do an iridectomy and he would have quite good sight.

Many of the cases of hypopyon ulcer we get at the Wills Hospital come from the anthracite coal mines. They will certainly perforate if the tension is not relieved. I rather condemn the Saemisch section. You are apt to take away a large part of the corneal tissue and pull out the floor of the ulcer with it. Naturally there is always iritis with hypopyon ulcer.

Dr. Harbridge stated that during the past month he had had



four opportunities to test dionin in four cases of subconjunctival ecchymosis. Three were cases of moderate spontaneous hæmorrhage. One absorbed in four days; the second increased the first three days, finally absorbing in thirteen days (from onset); the third, the normal eye being taken as a control (no dionin being used), absorbed in fifteen days. The fourth, a very extensive traumatic hæmorrhage seen four days after injury, absorbed in twenty days (twenty-four days after injury) leaving a yellowish discoloration such as is frequently observed following extensive hæmorrhage. Dr. Harbridge was somewhat skeptical as to the value of the drug in such cases.

Dr. Reber.—I do not believe in the indiscriminate use of dionin, but in new or fresh subconjunctival hæmorrhages it seems to be of much value. I insist, however, that the subconjunctival extravasation be not over 24 hours old when dionin is used. After that time hæmatoidin deposit delays the action of the drug. To assist in relieving the pain of iritis, I believe in dionin. To assist the action of atropin in such cases, I believe in it. To promote the absorption of postoperative debris, I believe in it. To hasten the absorption of a recent corneal scar, I believe in it. Its effect rapidly diminishes after the first week, when it should be supplanted by subconjunctival injections of normal saline solution, or yellow oxide of mercury salve. All three of these agents promote lymphatosis and are at times interchangeable in their effects. Finally—as I pointed out some years ago in one of the first papers in this country on dionin—in those rare cases of glaucoma following certain cases of iritis, when we are undecided as to whether we should resort to miotics or mydriatics, dionin is an admirable therapeutic straddle.

DR. D. FOREST HARBRIDGE, Secretary.

THE OPHTHALMOLOGICAL SOCIETY OF THE  
UNITED KINGDOM.

Thursday, February 8th, 1912.

Mr. J. B. Lawford, President, in the Chair.

Mr. Robert Doyne showed a case of guttate iritis. He said he had never seen a case in a man. The guttæ were independent, in position, of the inflammatory points. The guttæ, within a few days, might have completely changed their position. In this patient a week ago there were four well marked guttæ, but now there was only one. It seemed to be an exudation between the layers of epithelium where it was reflected; usually the subjects of the condition were gouty. The President reminded members of the cases shown by Mr. Doyne two years ago, and they seemed to have occurred only in cases of chronic iritis. If the condition happened in acute iritis it might be missed in the general haze.

Mr. Charles Wray showed three cases of frontal sinus disease, with pathological specimens; also a severe case of ingrowing lashes treated by the electro-cautery. He said that although Ziegler advocated that for entropion the cautery should be at a white heat, his own experience was that it was better at a dull red heat; and he preferred the thermo-cautery.

Mr. Wray also showed a cyclo-phorometer and described his method of testing. The case was discussed by Mr. Worth, who referred to a book he published ten years ago, on the subject.

Mr. G. Coats exhibited a case of unilateral proliferation of the uveal pigment, and Mr. Treacher Collins one of unilateral melanosis of the uvea and sclera, with elevations on the affected eye. These were discussed together. Mr. Coats said there was evidence that the spot was there shortly after birth, and it had increased considerably in the last year. There was increased pigmentation of iris, fundus and sclera. The point of most interest was the presence of elevations on the surface of the iris. Twenty-six cases of the kind had been recorded and of those no fewer than seven developed sarcomata in the eye late in life. The commonest age for it to occur was between 50 and 60, and the age of the youngest case recorded was 34.

Mr. Collins said he had his case under observation and care, backwards and forwards, for ten years. Not every case of

melanosis showed elevations on the iris. Some years ago he showed, at the Society, sections at the seat of melanosis, apparently dating from birth, in a man aged 60. He thought it was melanotic sarcoma of the ciliary body. He recently re-examined that section and found it remarkably free from elevations.

Mr. Leslie Paton showed a case of holes at the macula, which he considered differed from ordinary cases of holes at the macula, and from the 15 cases collected in Mr. Oglivie's paper, in the fact that the hole was bluish white. There was no history of injury in the case, yet there was some evidence that it was a recent occurrence. There had evidently been considerable retinal disturbance all round the macular region. Apart from the holes, the general appearance was like that of albuminuric retinitis, but there was no trace of albumen in the urine, and no other organic disease.

Mr. Greeves showed again a patient with recurrent unpigmented tumour of the sclera, the case having been brought forward originally in October last. Removal was done, and later there seemed to be a recurrence, but the scar tissue which began to form seemed to strangle the tumor, and it had now disappeared. The first tumor was pronounced to be a very cellular hæmangioma.

Mr. Cunningham showed two cases: (1) cholesterine crystals in the anterior chamber; (2) retinal hæmorrhage and exudation in a young subject. The second case he regarded as one of vascular disease.

The President, discussing Mr. Cunningham's second case, said he saw the lad in the hospital, and no condition had been found which was likely to be causally related to the eye condition: nothing, for instance, in the blood-cell count, or the coagulation time, or the presence of any bacterial condition. The possibility of lead poisoning had also been excluded.

Mr. Doyne considered that the case belonged to the type of case which Mr. Eales had worked at, and which he called spontaneous hæmorrhages, but which had not had much light thrown on them. He tried to find out something about the condition years ago, and was convinced that the veins, not the arteries, were responsible for the hæmorrhage. The cases seemed to be limited to men, but not to young men, as Eales thought. The whole eyeball might appear to be filled suddenly with blood. The cases which he had seen, recovered, sometimes with very good vision, leaving some silvery stains in the retina, and sometimes

some membrane in the vitreous. In one case he found that the blood tension was very low. von Pirquet was positive.

Mr. Cyril Walker referred to the case of a man aged 21, who was healthy, but the sight of one eye was bad. He had many streaky-looking hæmorrhages in the nerve fibre layer, and there were ten fairly large ones, the largest a quarter the size of the disc, and there were twenty smaller ones. In three weeks the sight improved a great deal. There was no macular star. Two months later the patient had a very large intra-ocular hæmorrhage, which blotted out everything. That remained opaque until two months later, when it began to get translucent. The treatment was mainly rest, and the patient was also given some mercury.

Mr. Layton Davies related the case of a male clerk, aged 19, who came complaining of severe headaches, and that a few days previously he became blind in his left eye. In the fundus, striate hæmorrhages were found over the retina, and dilatation of the vein, with white exudation in the macular region. It looked like a case of albuminuric retinitis, but a physician found the urine normal.

Mr. W. H. Jessop considered such cases were somewhat allied to Raynaud's disease, or even hæmophilia: the subjects of it when struck, rapidly became bruised. There seemed to be some defect in the coat of the arteries, leading readily to transudation.

Mr. Dawnay showed a case of persistence of anterior portion of hyaloid artery.

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Thursday, March 14, 1912.

Mr. J. B. Lawford, President, in the Chair.

The following card specimens were shown and discussed:—  
Mr. Cruise: A Case of Tuberculosis of the Conjunctiva; Scotometer for testing Central Color Vision. Mr. Wray: A Case of Subretinal Cyst. Mr. Grismdale: Acquired Hypermetropia with Rupture of Choroid. Mr. G. Coats: Pigmented Cyst lying free in the Anterior Chamber. Mr. Herbert said he saw a similar case to Mr. Coats' in Bombay, but there was no deposit on the lens capsule. Mr. Cargill showed a case of Osteoma of the Frontal Sinus. Mr. Cunningham showed a case of Episcleral Nodule, probably Tuberculous. Mr. Bishop Harman exhibited a case of Guttate Iritis.

Mr. Herbert read a paper entitled "A Distinctive Conjunctival Papule." He described a somewhat prominent defined painless papular swelling found on the inter-palpebral ocular conjunctiva, fairly common in India, and apparently rare in Europe. It occurred in adults, chiefly in males, and most often at the inner side of the cornea. It was generally of a pale pink color, paler than the immediately surrounding injected conjunctiva, and there were a few enlarged blood vessels running to it. It might stain feebly with fluorescein. It might last two or three weeks only, or considerably longer. Its chief histological features were great epithelial proliferation, more or less inflammatory infiltration, and elastic tissue degenerative changes. In the more active cases the epithelial cells were much enlarged, and multi-nuclear epithelial giant cells were to be found. Where epithelial down-growths were unable to form, owing to firm supporting fibrous tissue, the nutrition of the epithelial mass was served by the penetration of thin-walled bloodvessels into it. It was doubtful whether the elastic tissue changes were an essential feature, since they were well developed in the otherwise normal neighboring conjunctiva. They were the changes which had been described in pinguecula. Some of the broken down elastic tissue was carried by the lymph stream into the epithelium, more particularly in the more inflammatory cases. Some of the degenerate material was taken up by the epithelial cells, and thus disposed of. Its presence appeared to stimulate the multiplication of the cells. Portions of it, by causing localized proliferation, led to the formation of "cell nests." This observation should be tested as to its possible application to epithelial pearls in other affections, as in epithelioma of the skin. Much of the hyalin degenerate elastic material no longer stained specifically, but showed some newly-acquired selective staining affinities, which aided in its recognition. In one case particles of broken down tissues were also found in the epithelium.

Mr. Worth read a paper entitled: "Operative Treatment of Conical Cornea." He described a new operation for conical cornea. He said that in most cases which needed operation there was a very high degree of myopic astigmatism, sometimes as much as 15 or 20 diopters, with little spherical error, and even with the most accurate combination of correcting lenses, vision was usually very poor. At the apex of the cone there was usually what looked like an opacity, but examination with oblique illumination and a loupe often showed this appearance to be

merely a diffraction effect. The majority of surgeons operated upon conical cornea by applying the actual cautery to the apex with or without complete perforation. Some surgeons say that to operate without perforation is to produce a large opacity and small effect upon the refraction. Those who do not burn a hole completely through the cornea say that the presence for several days of a sloughy fistulous opening into the anterior chamber would be a source of grave danger to the eye. The instruments required for Mr. Worth's operation are a platinum thermo-cautery and spirit lamp, and a broad needle and spatula for tapping the anterior chamber. The platinum cautery has a flat surface of an elongated oval shape. The eye is cocainised and a drop of eserine instilled. A spot is selected on the cornea in the meridian of greatest curvature nearly midway between the summit and margin of the cornea, but very slightly nearer the summit. The cautery is heated in the spirit lamp and held over the eye until it almost ceases to glow in daylight. It is then applied to the cornea at the selected spot with its long axis at right angles to the meridian of greatest curvature. It should only be left in contact with the cornea for an instant, two or three applications are usually required, the cautery being heated each time. One endeavors to make a cavity about 4 mm. long and 2 mm. wide, with steep edges and extending nearly down to Descemet's membrane, but very great care should be taken to avoid opening the anterior chamber. Descemet's membrane appears to be more resistant to burning than the substance of the cornea, or perhaps the aqueous protects it in the same way as water protects a tin kettle. With care one can continue the cauterization until the membrane is seen bulging at the bottom of the wound. Then the anterior chamber is tapped near its periphery and the aqueous evacuated. The anterior chamber is tapped near its periphery on each of the following three or four days, and after that on alternate days, until the ulcer is healed. The main points of the operation are—the dangers of a communication between the wound and the interior of the eye are avoided; the frequent evacuation of aqueous promotes rapid healing of the wound and greatly increases the effect of the operation; by concentrating the effect of the operation chiefly upon one meridian and so reducing the myopic astigmatism one gets better visual results than could otherwise be hoped for: no subsequent iridectomy is required. Mr. Worth said that the operation was so safe and satisfactory that he would not hesitate to recommend it in a case



of non-progressive myopic astigmatism of extremely high degree. The paper was discussed by Mr. Ernest Clark, Mr. Wray, Sir Anderson Critchett, Major Alexander, Mr. Arnold Lawson, and Mr. Harrison Butler. Mr. Wray, in his remarks, expressed surprise at hearing Mr. Worth say that so many cases of the kind were corrected by means of myopic cylinders. The last seven cases he, the speaker, has had were corrected by plus cylinders. Sir Anderson Critchett's observations consisted of a defence of his operation by means of the galvano-cautery.

Mr. Brailey read a paper entitled: "A New Cell Proliferant." He called attention to a new drug named Allantoin, which he termed a new cell proliferant. Its action was not that of an antiseptic; so far from that being the case it actually encouraged the growth of organisms, but its great use was that it encouraged the proliferation of the cells of the tissue. He mentioned the case of a small corneal ulcer which, after cauterizing and the application of various remedies, did not get well. Drops of allantoin quickly caused a marked improvement. He mentioned several similar cases and explained the beneficial action of the drug by its causing the cornea to receive extra nourishment. He considered that the drug was well worth a trial in all cases of long-standing keratitis, and possibly scleritis.

Mr. Zorab read a paper entitled: "The Relief of Tension in Chronic Glaucoma: a Preliminary Report on a new Operation." After briefly reviewing the existing operations, he indicated that the guiding principle in each was drainage of the interior of the globe. He then went on to describe his own procedure—based on the same guiding principle. He described two methods, of which the second was, in his opinion, the better. Originally, he passed a threaded needle sub-conjunctivally into the anterior chamber, piercing the sclerotic coat at the angle. The needle was then brought out at a corresponding point through the angle, and out again sub-conjunctivally. The ends of the silk were cut short and a little manipulation ensured their being covered by conjunctiva. He found, however, that the conjunctiva was very frequently torn by the fixation forceps, and also there was some risk of pricking the iris and lens capsule with the point of the needle. Acting on the suggestion of Mr. J. F. Buller, he modified the operation thus:—A large flap of conjunctiva was raised—at the upper part of the globe, for choice—leaving a crescentic attachment along the limbus. A small incision was then made under this flap into the anterior chamber. A piece of sterile silk

thread about one-third inch long was doubled on itself, and the loop was pushed gently through the sclerotic incision into the chamber. The conjunctival flap was then replaced and stitched in a couple of places, great care being taken to see that the distal ends of the bight of silk did not come near the margin of the conjunctival incision. Mr. Zorab claimed for this procedure that it was quite devoid of manipulative risk, that it established efficient drainage, which promised to be permanent, and that it was simple to perform. The only danger, in his opinion, was from sepsis, but he did not regard this as being any greater than the other operation involving the eyeball. The greatest emphasis was laid on ensuring a complete covering of the silk by healthy conjunctiva. As the oldest case only dated back to July, 1911, he was careful to state that the operation was only on trial, but he was firmly convinced that it held out good promise. He had so far restricted it to cases of chronic glaucoma, as acute cases did well with iridectomy. He concluded his paper with notes of the cases already operated on.

Mr. Stephen Mayou mentioned some cases on which he had tried a similar procedure, somewhat before Mr. Zorab. Mr. Zorab replied.

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## ABSTRACTS FROM MEDICAL LITERATURE.

BY J. F. SHOEMAKER, M.D.,

ST. LOUIS, MO.

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### OCULAR TUBERCULOSIS.

E. Lubowski (*Med. Klinik*, July 23, 1911) urges the importance and value of injections of tuberculin in the differential diagnosis of dubious affections of the eyes, citing several instances where this alone cleared up the diagnosis. Without this being done many such cases are likely to go from one physician to another, having a different diagnosis made by each one and getting no permanent benefit. The dread of the test by patients and physicians is to be deplored. He thinks it important to become familiar with the different forms a tuberculous process may assume in the eye. Uveitis and scleritis have tuberculosis as their underlying cause in the great majority of cases. Obstruction in the central artery of the retina with plastic iritis or neuroretinitis with central scotoma may also be a manifestation

of a tuberculous process and he has seen a case of this kind completely recover under tuberculin treatment. He thinks likely the process developed behind the globe in the central canal of the optic nerve, and the tuberculin treatment caused this to subside, thus permitting the optic nerve to resume its function without any atrophy of the nerve being visible. In another case in which hæmorrhages into the vitreous and obstruction of the central artery of the retina occurred, the disturbances also disappeared completely under tuberculin treatment. The favorable outcome of the tuberculous thrombophlebitis is in pronounced contrast to the atrophy of the optic nerve generally following traumatic lesions of the kind.

#### ADVANTAGES OF MASSAGE OF THE EYE IN TREATMENT OF PARENCHYMATOUS KERATITIS.

E. Grandclément (*Lyon Médical*, June 18, 1911) has for years been advocating and employing vigorous massage of the eyeball in the treatment of parenchymatous keratitis. He has the eyeball massaged well for fifteen minutes ten or fifteen times each day, using a little salve in the conjunctival sac so that the lids slide over the globe readily. Under this treatment he finds that ordinary cases are cured in seventy days. In cases where there are pronounced Hutchinson's teeth it usually takes longer—from ninety to one hundred days. The frequent vigorous massage of the eyeball keeps the leukocytes which invade the cornea in such large numbers in this disease stirred up so that they are easily carried along by the circulating fluids in the cornea, whereas if some such treatment is not employed there is great impairment of vision for months or even for years. The massage also assists in developing bloodvessels which carry away the leukocytes. He keeps the eye under the influence of atropin during the entire course of treatment to prevent posterior synechia or other complications on the part of the iris. Conjunctival injections of a 1 or 2 per cent. salt solution may hasten the cure. He finds mercury or iodid of little or no value in curing the keratitis.

#### SHORTENING OF AN OCULAR MUSCLE BY TUCKING.

H. M. Woodruff (*Jour. A. M. A.*, August 5, 1911) says that an operator, in selecting a method of shortening an ocular muscle, should be guided by the following considerations: 1st, the safety of the method; 2nd, its effectiveness, immediate and per-

manent; 3rd, the cosmetic result; 4th, ease of performance; and 5th, period of convalescence. He classifies such operations into three groups: First, those in which a new insertion is made nearer the cornea (the advancement operation proper); second, those in which the muscle is shortened but the natural insertion preserved, as in (a) the tucking operation and (b) the resection of a portion; third, those which are intended both to resect and advance. He quotes from different authors to show the dangers incident to the first class of operations where the anchorage is made in the sclera. These dangers or disadvantages are avoided in the tucking operation. He describes his method of performing the tucking operation and gives the following as the results of this operation:

1. The highest degrees of strabismus may be corrected by tuckings with tenotomies of the opposing muscles.

2. Torsion is prevented by measuring the distance from the tendon insertion back to the point of entrance in the muscle and making both upper and lower correspond.

3. The method of tying the suture in the muscle prevents its splitting the muscle fibers while traction is made on it and when tied to the tendon insertion it is a physical impossibility for the muscle to become loosened as the traction is at right angles to the direction of the muscle fibers.

4. By disturbing the capsule so little considerable swelling is avoided (Wooten), but by including the overlying capsule, somewhat greater effect is produced.

5. By not sacrificing any portion of conjunctiva or advancing it, deformity and unsightly scar tissue are avoided.

6. A tucking of a given amount of muscle will result in not more than half as much correction in the position of the eye.

In a convergent strabismus of 10 mm. it is well to tuck 15 mm. of muscle and tenotomize the rectus internus leaving a slight undercorrection. For anatomic reasons a 15 mm. tuck is about as much as one is able to make. Then, too, the externus itself is about 50 mm. in length and a shortening of a greater proportion might easily impair its power of contraction. Motais has shown that the contraction of a rectus muscle necessary for its full physiologic movement is about one-half its length.

I feel that I can recommend this operation to my colleagues as being absolutely safe, permanently effective, devoid of any permanent noticeable deformity, easy to perform under local anesthesia in any one over 12 years of age. The period of convalescence need not be longer than one week.

AMERICAN MEDICAL ASSOCIATION—MEETING AT  
ATLANTIC CITY, JUNE 4TH TO 7TH.

PRELIMINARY PROGRAM. SECTION ON OPHTHALMOLOGY.

Chairman, Adolf Alt, St. Louis.

Secretary, Edgar S. Thomson, New York.

Chairman's Address—Adolf Alt, St. Louis.

A Clinical Communication on Certain Visual-Field Defects in Hypophysis Disease with Special Reference to Scotomas.—

G. E. de Schweinitz and T. B. Holloway, Philadelphia.

Disease of the Optic Nerve in Myxedema; Its Relationship to the Thyroid Gland and to the Hypophysis.—George S. Derby, Boston.

The Krönlein Operation as an Exploratory Procedure in Affections of the Orbit.—Arnold Knapp, New York.

The Surgical Treatment of Exophthalmos.—Martin B. Tinker, Ithaca, N. Y.

Pemphigus of the Conjunctiva; with the Report of a Case.—Walter Baer Weidler, New York.

Subconjunctival Injections in Ophthalmic Therapy.—E. L. Jones, Cumberland, Md.

Sympathetic Optic Neuritis; with report of a Case.—Edgar S. Thomson, New York.

Phlyctenular Ophthalmia and its Etiology.—H. D. Bruns, New Orleans.

Removal of the Lens in High Myopia.—Walter Eyre Lambert, New York.

Orbital Cellulitis from Disease of the Superior Maxilla in Children.—William Campbell Posey, Philadelphia.

Sclerosis of the Ligamentum Pectinatum and its Relation to Glaucoma (with Lantern Demonstration).—F. H. Verhoeff, Boston.

Nasal Hydrorrhea; Its Relations to Lesions of the Brain, and Visual Apparatus.—Casey A. Wood, Chicago.

Some Early Diagnostic Retinal Signs of Arteriosclerosis, and Chronic Bright's Disease.—Albert E. Bulson, Jr., Ft. Wayne, Ind.

Visual Disturbances from Distant Hæmorrhage.—William Zentmayer, Philadelphia.

- Address: Provision for the Proper Teaching of Ophthalmology in Medical Schools.—Edward Jackson, Denver.
- Cataract Extraction with Corneal Suture.—Edward C. Ellett, Memphis.
- Preparatory Capsulotomy in Extraction of Immature Senile Cataract.—Percy Fridenberg, New York.
- Suggestions Regarding Some Points in the Technic of Cataract Extraction.—Samuel Theobald, Baltimore.
- Visual Results After the Smith Intracapsular Cataract Operation.—D. W. Greene and J. W. Millette, Dayton, O.
- Eye Complications Caused by Hookworm Disease.—F. P. Calhoun, Atlanta, Ga.
- Measurement of the Fatigue of the Ocular Muscles.—Lucien How, Buffalo, N. Y.
- The Findings of the Tropometer in 100 Normal Eyes, and Its Value in the Study of Strabismus.—Wendell Reber, Philadelphia.
- Normal Values of the Accommodation at All Ages: A Statistical Study.—A. Duane, New York.
- Dangers to and Requirements of the Eyes of the National Marksman.—John A. Donovan, Butte, Mont.
- Case of Unocular Polyopia Existing in Both Eyes.—John C. Bossidy, Boston.
- Morgagnian Cataract.—Burton Chance, Philadelphia.